

Soil Quality – A tool for BMP effectiveness

Soil quality is the new “buzz”, and it has some people all worked up like a bunch of bees. What is Soil quality? Soil quality is the capacity of the soil to function, to sustain plant and animal productivity, and maintain water and air quality. What does this mean to us? The better the soil quality the better the soil functions to support plant and animals, and serves as a filter for water and air quality.

A total of 34 sites have been sampled within the boundaries of the Cottonwood Creek Watershed on cropland that has been enrolled in conservation programs. The sites were done on ten different farms in triplicate unless management dictated more sites were needed. Management differences dictating additional tests were such things as taking a field out of pasture or hay just prior to no-till or direct seeding. This type of a practice seemed to parallel a third year or better no-till/direct seed rotation; which dictated being separated from other fields on the farm that were in the first or second year of no-till/direct seed. Management on the 10 farms varied from a minimum till system to the fifth year of no-till production.

Several different tests were performed and a variety of data collected at each site. The data includes microbial respiration, infiltration rate, bulk density (surface and subsoil), water filled pore space (WFPS), electrical conductivity (EC), water content, nitrates, water stable aggregates, soil slaking, earthworm counts, soil structure index, top soil depth, soil temperature, and percent organic matter. All tests were done as outlined in the Soil Quality Test Kit Guide (Soil quality institute, Aug 1999). Soil types sampled were primarily the NezPerce, Shebang and Chicane soil series.

All 34 sites will be sampled again this year to assess soil quality trends due to changes in management, where management changed. Some fields have had significant management changes in the past 3 years while others have not had any changes in management. The initial data indicated that positive soil quality trends could be managed with such practices as direct seed. Additional soil quality data will allow us to assess the effectiveness of multiple years of direct seed on soil quality parameters and enhance water quality.

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Eileen graduated from the University of Idaho with a BS and MS in Soil Science. She worked with the US Forest Service in Cody, WY for five years as a Soil scientist. Eileen started with the Idaho Soil Conservation Commission in 1997 in the soil survey program. In 2000, she started working with the Idaho Soil and Water Conservation District in Grangeville, ID on the Cottonwood Creek TMDL Implementation Project. Eileen's extensive soil science background has been an asset to implementation efforts and Best Management Practice (BMP) effectiveness monitoring using the soil quality kit.

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